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Routledge Ecosystem Services Handbook

Deliberative and non-monetary valuation

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Abstract

There is an increasing interest in methods that can understand our values of ecosystem services in broad and multidimensional way. This chapter discusses a range of deliberative, analytical-deliberative, psychological and interpretive approaches to value the environment. Deliberative methods allow people to ponder, debate and negotiate their values, which can inform, moralise and democratise the valuation process. Analytical-deliberative approaches combine deliberative methods with more formal decision-support tools. Interpretive methods help us understand the narratives of places and what they mean to us as individuals and to our communities and culture. Psychological methods can survey the multi-faceted nature of how ecosystem services contribute to human well-being, and can also investigate our deeper held, ‘transcendental’ values. The way we approach valuation impacts on the type of values that are highlighted. Embracing values as a pluralistic concept means that, to comprehensively value ecosystem services, we need to embrace a diversity of methods to assess them.

1. Introduction

A sophisticated array of methods have been developed by economists to value ecosystem services. However, there is also increasing recognition of the limitations of these methods. These limitations are in part practical, and in part they have to do with the way that neoclassical economists conceptualises value. As chapter X pointed out, concerns have been raised that putting a money value on the environment and applying market-based thinking to it turns the natural world into a commodity. If nature is commodified, can this be rhymed with notions that other species, or even whole ecosystems, have intrinsic value independent of their benefits to human well-being? Does it make sense to try and monetise our cultural, emotional, and spiritual connections to nature? Economic methods focus on the values of individuals. What about the collective values we share as communities or society as a whole? Deliberative and non-monetary methods are often put forward as a way to consider values in a broader and more pluralistic way than mainstream economics. This chapter will introduce a wide range of deliberative and non-monetary methods to assess values ascribed to and associated with the natural world, which can be used as either an alternative to or in conjunction with economic methods. First, a summary will be given of the key limitations of economic methods. This is followed by a brief discussion of what values are, and a short conceptualisation of different types of individual and shared values. This will then aid a discussion of how these different types of values can be considered through different, but not mutually exclusive types of methods: *deliberative*, *analytical-deliberative*, *psychometric* and *interpretive*. I will conclude with a brief discussion of when deliberative and non-monetary methods are particularly advantageous, how different methods can be used together, and where future research might be headed.

2. Beyond monetary valuation

There exists a wide range of economic methods available to elicit ES values, including methods based on market prices, revealed preferences (where environmental values are revealed by choices expressed through observable behaviour, such as the willingness to travel to a certain place) and stated preferences (where preferences are elicited through surveys).

Fundamentally, all of these are based on the notions of willingness-to-pay (WTP) and willingness-to-accept. Here, the assumption is made that the value that someone has for something is reflected in how much someone is willing to spend on it, or in the amount of money someone would be willing to accept to lose it.

Neoclassical economics, currently the dominant economic paradigm, makes some further assumptions about values (e.g. Lawson, 2013). Values and behaviour are assumed to rely on rational, pre-formed, utilitarian preferences. When someone prefers A over B, this is assumed to be because A would provide more utility to that person than B. Individuals make choices by maximising their utility, rationally trading off the positives and negatives of different options. Originally, utilitarianism considered that utility was about increasing happiness. However, neoclassical economics considers utility in a more general way, as the degree that something satisfies wants or desires. Here, utility (and thus the value of something) cannot be directly measured, but only indirectly, through WTP.

Another important neoclassical assumption is that all explanations can be couched solely in terms of individuals. Thus, the value of something to society is always an aggregate of individual utility. Moreover, individual utility is assumed to be self-regarding. This means individuals are assumed to base their preferences solely on their own utility. The welfare of others (including future generations and non-humans) is assumed to influence individuals only if it increases their own utility.

Finally, mainstream economics makes an epistemological assumption that preferences can be positively and objectively measured (albeit indirectly through WTP). The main way that patterns in these preferences can be understood is through quantitative modelling.

These assumptions limit the scope of the methods based on them. It can be questioned whether all behaviour can really be couched in terms of pre-formed, self-regarding individual preferences that are rationally traded-off. In relation to the natural environment, peoples' motivations are very diverse, including rights, duties, virtues, and cultural beliefs, identities and narratives that are hard to translate into measures of utility. For example, people might be willing to pay for something because they feel it is the right thing to do, rather than because it satisfies their individual preferences. Many shared values operate at the level of communities and cultures, rather than individuals. However, economic approaches are unlikely to recognise pluralistic values and conceptions of well-being because the notions of what constitutes valid economic knowledge tend to exclude subjective and qualitative material. Economic studies focus on *what* is valued and *how much*, with little attention given to the *why* people value particular ecosystem services in particular places.

In managing the environment, there are many different dimensions of value to any given decision, which are not easy to trade-off against each other. When aggregating preferences, some kind of agreement is needed on how to aggregate within dimensions (i.e. how much does each individual count), and across dimensions of valuation (i.e. how are different value criteria to be made commensurate). Take, for example, appraisal of a hypothetical proposed mining project. Dimensions of value could be the usual costs and benefits (expected revenue, construction and operational costs, etc.), the livelihoods of people, the cultural impact of the project, and impacts on local biodiversity. In conventional economic analysis, if the benefits outweigh the costs after compensation, the project would be 'efficient' and deliver a net value

to society (regardless of whether these compensations actually take place). This assumes that, in principle, the ecological, social and cultural dimensions of value can be compensated fully and justly. In practice, many people feel very uncomfortable trading off values that relate to culture or ethics in monetary terms. However, unless all parties can deliberate together and agree about how different dimensions should be traded-off against each other, it is not possible to come to any single conclusion, and some economists themselves have argued that for this reason methods such as cost-benefit analysis have only limited use in these cases (Hockley, 2014). Often people do not have clear pre-formed values and prefer to deliberate on values with others. People also often resist attempts for their values to be converted into monetary amounts, and in managing ecosystem services the use of economic approaches can increase conflict rather than resolve it when people feel that their other values are not taken into consideration (O'brien, 2003). It has been argued that the description of the environment in terms of preferences, utility, WTP, and also ecosystem 'services' at the least fails to reflect the deeper and often shared meanings that places might hold (Daniel et al., 2012; Owen et al., 2009) and at the worst is in itself a political act of commodification and enclosure (O'Neill, 2008).

Economists make value-laden decisions in cost-benefit analysis about the distribution of property-rights, and who counts how much when evaluating the economic efficiency of different options. By basing decisions on the status quo, economic analysis often implicitly supports the rich and powerful, because in monetary terms they will have the largest benefits and costs. It is possible to make adjustments on the basis of different assumptions about property rights, but this requires a deliberation on what alternative assumptions and adjustments should be made on aggregate the preferences of diverse individuals and interests (i.e. who should count how much).

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Thus, it is clear that mainstream economic approaches have significant limitations. On their own, they cannot fully reflect the value of ecosystem services. To address these issues, a number of different ways forward have been suggested. Increasingly, deliberative approaches are seen as a way in which preferences can be more clearly formed and expressed (e.g. Alvarez Farizo et al., 2007), but they can also provide an opportunity to engage with a broader array of motivations and moral stances than utilitarian preferences alone (e.g. Kenter et al., 2011). Deliberative approaches can be monetary and non-monetary. Psychological approaches often use statistical techniques similar to economics, but they provide a different avenue to conceptualising well-being, in a multi-dimensional way rather than through a single monetary indicator. Others advocate interpretive or qualitative approaches (e.g. Daniel et al., 2012). These are less focused on general conclusions, concentrating on idiosyncratic knowledge that reveals the meaning of and narratives associated with places. They can provide a rich source of information on why particular places or natural features are important to us. Understanding the ‘why’ is often very important in the management of these places and in dealing with conflicts between different social groups and interests. All these different approaches can be combined with various types of mapping techniques, where participants indicate (and potentially deliberate) where ecosystem services and their values lie within in the landscape.

An overview of key methods and their relation to different types of values are listed in Table 1. As this table shows, particular methods relate to the different types of individual and shared values both in terms of outcomes of the methods, and in the case of deliberative methods the values that arise through the process.

However, it important to note that not all non-monetary methods are by definition in juxtaposition to the instrumental paradigm of mainstream economics (Raymond et al., 2014).

For example, ‘public participation’ mapping studies use surveys where individuals evaluate and score the landscape on the basis of a pre-determined categorisation of services or features. These individual values are then aggregated across populations in a similar way to economic studies, using arithmetic and without significant deliberation. While these studies share the advantages of economic approaches that a large sample can be assessed and that differences between groups can be assessed statistically, they also share many of the limitations outlined above. In contrast, ‘participatory’ mapping or GIS originates from within the participatory action research (PAR) community, and generally involves groups of participants who discuss and deliberate the value of different places. PAR focuses on facilitating a process of change within organizations or communities, directly helping to address key issues that are pertinent to participants. There is a particular focus on bottom-up learning, and the role of the researcher is more as a facilitator than as an expert (Kumar, 2002). Here the types of values that emerge are usually more idiosyncratic and interpreted post-hoc. A richer picture is likely to emerge, and there is more opportunity for implicit values to be made more explicit through deliberation, though probably with a smaller group of participants than in a public participation mapping exercise. However, there is no definite line drawn between instrumental approaches like public participation GIS and more deliberative and participatory approaches (Brown and Kyttä, 2014), and some authors argue for pragmatically combining elements of the two to integrate some of the benefits of both instrumental and deliberative paradigms (Raymond et al., 2014).

The diverse range of deliberative and non-monetary approaches and their particular advantages and disadvantages will be discussed in more detail below. However, it is useful to first consider what the different types of values might be elicited through them.

3. A plural perspective on values

As discussed above, there are many different values and dimensions of value associated with management of ecosystem services. An important benefit of using deliberative and non-monetary methods is that they can take a broader perspective on values than conventional monetary approaches. However, different methods are more suitable for eliciting different types of values, and it is important to distinguish between these types to make a more informed choice about what methods are suitable in particular situations and how their results can be interpreted. While there are various frameworks that type values for ecosystem services in a range of different ways, the UK National Ecosystem Assessment developed a framework specifically designed for characterising and better understanding valuation processes (Kenter et al., 2015). The framework distinguishes five *dimensions* of values: (i) the value concept; (ii) the value provider; (iii) the process used to elicit values; (iv) the scale of value; (v) and its intention (Figure 1).

In terms of the *concept of value*, a distinction can be made between values in the sense of: ‘*criteria that people use to select and justify actions and to evaluate people (including the self) and events*’ (Schwartz, 1992); values in the sense of opinions about worth or importance; and the worth of something itself, often expressed in monetary terms. Another way of looking at this is that values can be differentiated between guiding principles and goals that transcend specific situations (e.g. fairness, honesty, enjoyment), which are called *transcendental values*; values that are dependent on an object of value and hence contextual and attitudinal, which are called *contextual values* (e.g. clean water); and measures of the worth of something (e.g. WTP of £100 to improve water quality), which are called *value indicators*.

In terms of *providers of value*, we can distinguish individuals, ad-hoc groups, communities, and societies as a whole. Societies, as a whole, share *cultural* and *societal values*, which may be considered shared principles and virtues as well as a shared sense of what is worthwhile and meaningful. Within societies and cultures there is a wide range of social groups that may express distinct *communal values*, including local communities, faith groups, groups of people that share an activity such as recreational users of the environment, communities of practice etc. In addition, there are the ad-hoc groups associated with research, such as a discussion group of stakeholders or a focus group with members of the public, which can come to collective value outcomes that we term *group values*, for example in techniques such as citizens' juries or multi-criteria analysis that will be detailed below.

The dimension of *elicitation process* distinguishes between *non-deliberated* and *deliberated values*.

In terms of *scale*, we can distinguish the individual scale, and the social or societal scale, which has bearing on *values to society*, or in relation to society. An example is that one might highly value enjoyment and a varied life for oneself (e.g. reflected in consumer behaviour), but in relation to society other values such as fairness or responsibility might be more important (e.g. reflected in voting behaviour). An example at the level of indicators is that one might be willing to pay £10 to improve water quality (individual scale), or think that local government should invest £1 million in a water treatment plant (social/societal scale).

The dimension of *intention* relates to whether values are self-regarding or are other-regarding, altruistic values. For example, I may value my own life enjoyment (self-regarding), but also that of my neighbour or that of future generations. *Intention* differs from the *scale* dimension, as values for others are not necessarily values in relation to society.

Armed with an understanding of the distinctions between these different value types, we can now consider how deliberative, analytical-deliberative, psychometric and interpretive methods might elicit these values.

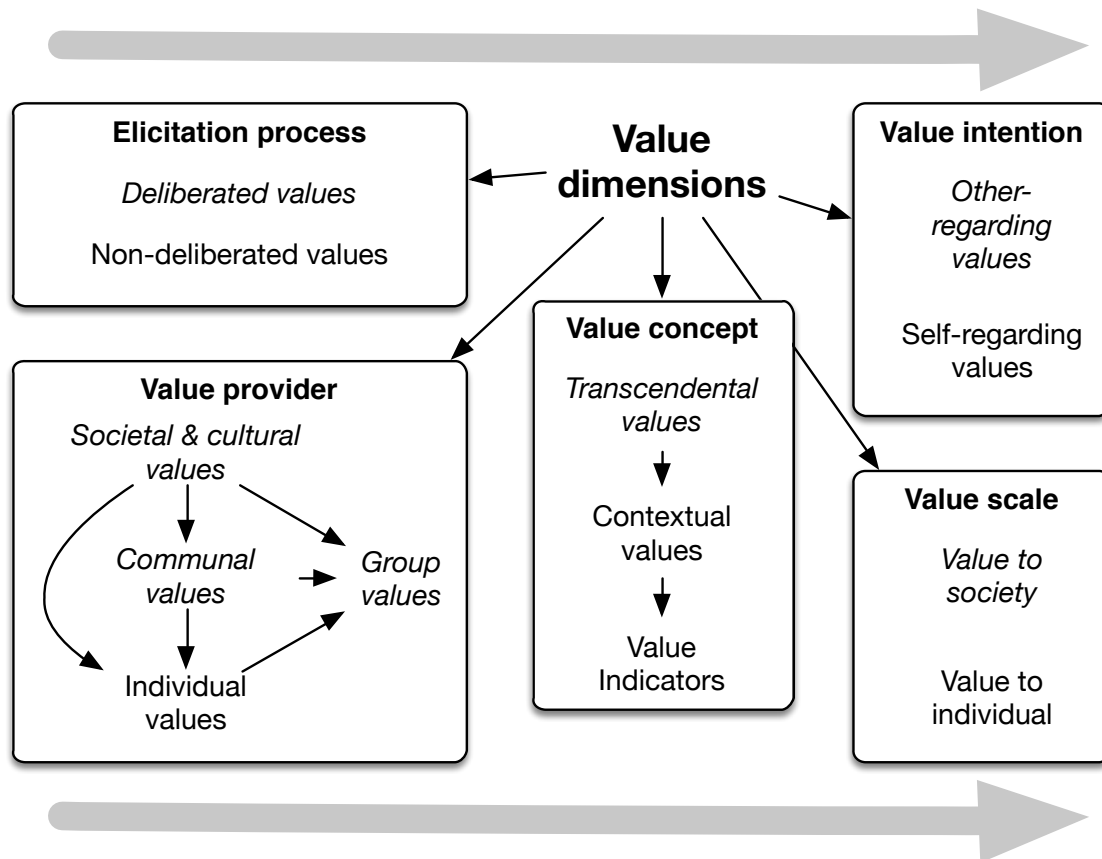


Figure 1. Dimensions and types of values (adapted from Kenter et al. 2015). Bold titles indicate dimensions of value. Italicised titles indicate types of shared values; non-italicised titles indicate other types of values. Arrows within boxes indicate directions of influence. Grey arrows signify that the type of elicitation process and value provider strongly influence what value types are articulated along the concept, intention and scale dimensions.

4. Deliberative and analytical-deliberative methods

As discussed above, economists have mostly used survey-based techniques (e.g. questionnaires or structured interviews) without significant deliberative components in valuation. There has been a presumption in standard economic approaches that preferences are pre-existing and stable. However, it is increasingly argued that preferences and contextual values are not pre-formed but need to be generated through some kind of transformative process of deliberation and learning (Kenter et al. 2011, 2014; Parks & Gowdy, 2012; Spash, 2007, 2008). Participatory and deliberative processes are appealing in that they provide participants of valuation studies with time to learn about the good under investigation, as well as time to reflect upon (and construct or potentially modify) their values (Alvarez Farizo and Hanley, 2006; Christie et al., 2006). If the deliberation is undertaken as a group process, participants have the opportunity not only to express and debate their own knowledge, views and perspectives, but also to learn about and consider the values of those of others in the group. In particular, discussions might address rights, responsibilities, equity, fairness and other transcendental values and political considerations. Moreover, deliberation provides a crucial opportunity to better consider issues around uncertainties and risks (Zografos and Howarth, 2010). A group learning process is also particularly important with respect to bringing out cultural and communal transcendental values (Kenter et al., 2011) and coming to decisions on group contextual values (Niemeyer, 2004). Such group values might be expressed as a consensus or majority view on what the group believe to be in the best interest of society. Here, participants can come to agreement on how different dimensions of value and different interests should be aggregated. However, consensus views are not always achievable or desirable (Sagoff, 1998) and a deliberative process could also result in the recognition of a diversity of values, where outcomes are achieved that account for reasonable differences (Lo, 2013).

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In terms of classifying deliberative methods, two broad groups can be identified:

‘deliberative’ and ‘analytical-deliberative’ methods. Deliberative methods, such as in-depth discussion groups and citizen’s juries, include a range of techniques that allow stakeholders to ‘confer, ponder, exchange evidence, reflect on matters of mutual interest, negotiate and attempt to persuade each other’ (Stern and Fineberg, 1996, p. 73). Through this deliberative process, individuals are encouraged to express and develop their views as different evidence and perspectives are considered. The outcomes of deliberative methods are mostly qualitative and might include priority lists, recommendations and verdicts. Analytical-deliberative methods such as deliberative monetary valuation (DMV) and multi-criteria analysis (MCA) tend to involve more elaborative approaches that integrate deliberative-based techniques with more formal decision-support tools. Outcomes from such methods are often expressed in monetary terms or other type of quantitative ranking or rating.

Lo & Spash (2012) provide a useful framework in which they set out three approaches to incorporating deliberation into valuation: preference ‘economisation’, ‘moralisation’ and ‘democratisation’. Preference economisation primarily seeks to utilise deliberation to ease the respondent’s cognitive burden associated with expressing stated preference monetary values. Thus, information and group discussions are primarily focused to nurture value elicitation at the individual level. Preference moralisation seeks to use deliberation to bring out transcendental values and deliberation is extended to address non-economic considerations including social norms, rights and procedural fairness. This is particularly important for valuation of ecosystem services, because environmental values are often latent and require a moralisation process to be brought out.

Within the values framework describe above, moralisation can be seen as a value construction or translation process where transcendental values are brought in and related to a

context, so that contextual values can be formed. Building on our conception of transcendental values as much broader than just ethics, including a wide range of life goals and aspirations, moralisation becomes a broad process. For example, values associated with cultural identity are often intertwined with aspects of environmental settings (Church et al., 2011) and deliberation on the importance of nature for cultural identity can significantly change contextual values and preferences (Kenter et al., 2011).

Lo & Spash (2012) consider that effective deliberation processes contain both information-oriented and moralisation aspects, but should also seek ‘choice democratisation’ as an approach that is consistent with deliberative democratic principles and value plurality. Rather than following standardised procedures, such an approach centres on key principles and requirements in relation to process.

This is particularly important given some of the key limitations of deliberative methods, which have to do with the legitimacy of the deliberative process, and with who is represented around the table. In terms of the former, it is hard to ignore the often unequal social relations and institutions outside of the valuation setting, which will influence participant’s to voice their opinions and concerns (O’Neill, 2007). There are likely to be differences in terms of social status, political influence, class, education and experience with deliberation and discussion. This can lead to participants’ not expressing or adjusting their views under the pressure of power dynamics or as a result of perceived social desirability. While this can be managed to some degree through professional facilitation, this also needs explicit consideration in the process design.

As to representation, deliberative approaches usually (though not always) use smaller samples than instrumental approaches and often select participants on the basis of their political representativeness (e.g. as representative of a stakeholder group) rather than randomly. Questions might also be raised in relation to competence (are participants able to

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assess the issues at stake) and whether representation needs to counterbalance the type of political and institutional biases described above (Fish et al., 2013). These issues need to be considered through rigorous stakeholder analysis. While there are well-developed processes for stakeholder selection - for an overview see Reed et al. (2009) and Varvasovsky and Brugha (2000) - selection of participants inevitably to some degree remains a subjective process that can substantially influence outcomes.

An elaborate example of applying different deliberative and analytical-deliberative techniques is given in Box 1. This case study illustrates how processes of information sharing, moralisation, deliberative-democratic debate, and eliciting group-based values can generate substantially different outcomes from conventional individual survey approaches, addressing some of the key limitations of economic approaches outlined above.

5. Interpretive methods

Interpretive methods seek to find meaning and understanding through the subjective identification and analysis of discourses. Subjective (and sometimes ‘intersubjective’) experience is seen to be crucial to understanding why it is what people do. Thus there is an emphasis on the qualitative. Values are understood as constructed between individuals and institutions, through a socio-cultural process (O’Brien 2003). In relation to ecosystem services, the focus is on understanding how participants relate to the environment and what the meaning is of different places in the land- or seascape and the services it provides.

Interpretive methods have largely been used or proposed in relation to cultural ecosystem services. While interest in ecosystem services and cultural services in particular is a recent phenomenon, there is a long history in using interpretive approaches to understanding landscape history (Robertson and Richards, 2003), and these accounts have provided

accounts of the communal, cultural and transcendental values that are tied to specific places or features therein, such as trees, ‘exposing the splendour and secrets’ (Rackham, 2003).

Interpretive methods have a particular advantage over quantitative and instrumental approaches in that they can be used to understand narratives, which can have a profound influence on how we value things and which may underpin peoples’ ethics at least as much as much more abstract notions such as rights, virtues and utility (O'Neill et al., 2008). For example, as is illustrated in Box 2, ancient woodlands and veteran trees are not just highly valued because of their ecological characteristics, but also because of the stories they tell. Their role as a witness to human events or as a cornerstone to communal identity throughout the centuries might give them a very profound and incommensurable value.

Music, visual and performance arts and the creative literature often express how we relate to and value the environment. But interpretive methods can also be based on fieldwork, such as through semi- or unstructured individual and group interviews, storytelling sessions or participatory mapping sessions. Here, the boundary between interpretive and deliberative methods can become blurred, as qualitative methods can have more or less aspects of deliberation, and deliberative methods can have more or less elements of interpretation. Results of deliberation tend to revolve around outcomes (e.g. a verdict in a citizens’ jury or monetary values in DMV) whereas interpretation is used to analyse the discourses of the process (e.g. the narratives that are used to justify a verdict). For example, in the case study on the value of potential marine protected areas described in Box 1, storytelling was used both as a means to understand the meaning of these places to marine users and as a deliberative tool in DMV workshops, and the process of storytelling and discussing deeper held values impacted on participants’ WTP for marine conservation.

Finally, desk-based interpretive methods can provide a rapid and relatively low cost analysis of values for different ecosystem services. For example, cultural history studies or analysis of

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the creative literature can reveal particular cultural representations and values associated with places. Media analysis can consider public discourses associated with specific ecosystem services including potentially conflicting communal values and beliefs of different social interest groups. It can be used to gather a 'snapshot' of current public views, but it can also be employed to assess public feeling over longer time periods, to assess shifts in values.

6. Social-psychological methods

Social psychology and sociology have engaged with environmental values over several decades, and much of this research can inform valuation of ecosystem services. Two areas stand out as of particular relevance: theories on transcendental cultural values and how they relate to our environmental behaviour, and research on the subjective well-being value of green spaces.

In terms of the former, research by Schwartz and associates (1999; 1992) developed a list of 56 key transcendental values that could be measured across a wide range of cultures. These include both ethical principles such as honesty also include things that can be characterised as desirable end states, such as 'a varied life', 'family security', or 'mature love'. While cultures adhere to these values to different degrees, the set of values appears to follow a universal structure. For example, cultures that have stronger values relating to tradition also tend to have stronger values around security, and those who are willing to transcend their own interests for others are also more likely to have more strongly pro-environmental values. Further evidence suggests that these values do not directly influence contextual values and behaviour, but are mediated by worldviews, beliefs about what is at stake and who is responsible, and norms (Dietz et al., 2005; Stern, 2000). These theories and the psychometric tests and scales that are associated with them can help ecosystem services researchers better

understand how cultural and transcendental values influence more specific contextual values for ecosystem services. They can also be used to bring rigour to the design of deliberative valuation processes and help evaluate them.

Psychological approaches to assessing the relation between the environment and subjective well-being also provide a useful means for evaluating the value of ecosystem services.

There is substantial evidence that proximity of green space and interaction with the natural environment provides benefits to well-being in a multi-faceted way, such as restoring mental well-being, improving cognitive function, providing opportunity for reflection, strengthening one's sense of identity and providing aesthetic appreciation (e.g. Dallimer et al., 2012; Lindemann-Matthies et al., 2010; Wells, 2000).

Thus, in contrast to the mono-dimensional mainstream economic conceptualisation of welfare as preference-satisfaction, well-being is conceived of as multi-faceted. Typically, potential well-being indicators are assembled on the basis of qualitative work (e.g. interviews) and/or existing literature. Data is gathered using quantitative surveys, where factors are analysed statistically. Through multiple studies with different samples in different contexts, more or less generalizable instruments can then be created. Currently, first attempts are being made at developing such an instrument for assessing cultural services, as is illustrated by Box 1.

7. Choosing a method

Deliberative and non-monetary methods for valuing ecosystem services are wide reaching and originate across a broad range of disciplines, including the arts and humanities, social-psychology, sociology, anthropology, geography, development studies and ecological economics. This means that epistemological paradigms (philosophies about how we can know things) and perceptions on what are legitimate and valid approaches to research and analysis are also diverse. Valuation methods are 'value-articulating institutions' (Vatn, 2009).

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In other words, the way we approach valuation impacts on the type of values that are highlighted. Embracing values as a pluralistic concept means that, to comprehensively value ecosystem services, we need to embrace a diversity of methods to assess them. Both the marine and old growth forest case studies illustrated a mixed method approach, where different components of the methodology emphasised both different types of values, and where participants emphasised the importance of different ecosystem services. For example, in the forest case study, journal interpretation more strongly brought out non-material cultural ecosystem service benefits than the focus group or rating sheets.

The choice of which methods to use depends on five key interrelated things: (i) whether the proposed policy or management that is to be evaluated is likely to lead to significant conflict or contestation, (ii) the complexity of the system under consideration, (iii) the services under consideration and values one might expect to find, (iv) practical limitations, and (v) the stage of the policy cycle.

In terms of the first, key questions to ask are whether different stakeholders share the same framing of the issue in question. Are they likely to more or less agree on who, and which ecosystem services might be affected and how? Is there a common understanding on what the problem or goal is that the policy or management measure is aiming to address or achieve? Is the evidence around the effects of different measures agreed upon? The more strongly negative the answers to these questions, the more likely it is that the use of an instrumental, non-participatory or overly analytical approach will exacerbate resistance and conflict, and the more important it becomes to understand more precisely in what way different ecosystem services are valued and why. Here interpretive approaches are particularly useful. In strongly contested contexts deliberation can also be of use, but high quality process design and

facilitation is crucial and will need to focus first on building trust and a degree of shared understanding before moving to valuation.

In terms of complexity, in relatively simple contexts quantitative assessments or desk-based assessments will probably suffice. For complex situations more elaborate analytical-deliberative approaches (e.g. participatory modelling) that focus on group-based or social learning, or approaches that incorporate expert knowledge (e.g. citizens' juries) can be particularly useful.

In terms of the services under consideration, it is clear that some services are more amenable to quantitative and analytical approaches than others. Cultural services are generally more idiosyncratic (i.e. they are expressed differently in different places), which advocates for a more interpretive approach. However, it is important to recognise that many provisional and regulating services also have implicit cultural aspects that may be more or less explicit. Many environmental values are subtle and require a deliberative learning process to surface (Kenter et al., 2011). In terms of value types, in non-contested cases it can be sufficient to focus on contextual individual values, while in more complex and contested cases it is important to understand the relations between different transcendental and contextual values, as these are central to understanding conflicts between frames. Here valuation processes need to be designed with value formation as well as elicitation in mind and this might involve combining different deliberative, analytical-deliberative and interpretive techniques (for examples see Kenter et al., 2014).

However, ultimately the choice of method will often be determined by practical restrictions such as the timescale, expertise and resources available. Here monetary and quantitative survey-based approaches have a better reputation than qualitative and deliberative methods, though this is not always justified. There are a variety of relatively rapid and low-cost, desk based interpretive methods, such as media analysis and cultural history studies, and

particularly at local scales workshop-based deliberative methods can be implemented more rapidly than quantitative valuation surveys that are demanding in terms of statistical design and analysis. In complex cases DMV workshops with 10-20 participants each can be more efficient than the use of individual contingent valuation interviews whilst delivering a potentially higher quality result.

Finally, of course methods certain methods are more suitable for different stages of the policy cycle: gathering ideas, surveying values, assessing policies, planning, delivering and managing, and evaluating. Table 2 provides an overview of which methods are most suitable for these different stages.

8. Conclusions

This chapter has reviewed a range of deliberative, deliberative-analytical, psychological and interpretive methods, illustrated by two mixed-method case studies. While many non-monetary and deliberative methods have only been used explicitly for valuing ecosystem services in a limited number of cases, most have been used successfully to evaluate policies and management in other contexts. Which methods to choose depends on whether the proposed policy or management that is to be evaluated is likely to lead to significant conflict or contestation, the complexity of the system under consideration, the services under consideration and values one might expect to find, and practical limitations. In complex and contested cases deliberative and non-monetary methods may be more appropriate to use than mainstream economic methods, because they can consider a broader spectrum of values and conceptions of well-being and may meet with less resistance. In many other cases they can be used alongside economic methods to provide a more comprehensive valuation, considering not just how much ecosystem services are worth but also what they mean to people.

Key references

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Learning points

- Values of ecosystem services are multi-dimensional, and different types of methods are needed to assess different types of values.
- Deliberation can help people to better understand ecosystem services and translate their ‘transcendental’ values (overarching principles and life-goals) into more specific ‘contextual’ values, which is particularly important in complex and contested policy contexts.
- Interpretive and qualitative methods can help us to develop an in-depth understanding of what different ecosystem services mean to people, helping us answer not just how important different ecosystem services are but also why.
- Psychological methods can be used for both small and large-scale quantitative assessments of the many different ways that people experience well-being from

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ecosystem services, and can be used to assess transcendental as well as contextual values.

Box 1. Valuing UK marine protected areas

The Convention on Biological Diversity has called for 10% of the seas to be designated as a marine protected area (MPA), but there is only limited knowledge of the ecosystem service benefits that this might generate. This large-scale case study by Kenter et al. (2014; 2013) valued cultural services of potential marine protected areas (MPAs). The study considered whether shared values elicited through deliberative workshops were different from individual values, and provides an example of how monetary, deliberative and non-monetary methods can be integrated to provide a more comprehensive valuation.

Methods

Data gathering consisted of two phases: an online survey with 1,683 divers and sea anglers, and a series of 11 DMV workshops (130 participants) and 5 MCA workshops (55 participants) across Britain. Both the survey and DMV workshops included contingent valuation (CV) questions that asked about WTP towards protecting sites into the future. The CV tasks considered vulnerable species, marine landscape/habitats, large fish and charismatic species, wrecks and rock formations, access options, management restrictions, size, and travel distance¹.

¹ The innovative use of attributes in CV tasks made it possible to associate WTP with specific aspects of sites (in a similar way as in choice experiments); see Kenter et al. (2013).

The DMV workshops consisted of a deliberation stage focused on information exchange , followed by individual and group-based CV stages. A second intervention focused on exchange of experiences and values through storytelling by participants and a ‘values compass’ (Table 1). This was followed by another individual and group valuation stage. The MCA workshops presented participants with a set of goals important to recreational users and a number of scenarios reflecting different MPA management regimes across different marine settings. Participants assessed the importance of different goals as individuals and as groups and then scored how well different management options realised those goals at different settings.

The survey and workshops also included a psychometric component that asked participants to respond to 15 subjective wellbeing statements about the sites they visited and questions on their transcendental values, beliefs and norms.

Results

WTP substantially decreased as a result of the second deliberative intervention and expressing values as a group. Participants clearly scrutinised the sites presented to them and they more clearly evaluated them against other societal priorities. There were extensive discussions around responsibility and fairness in relation to management restrictions and access, which were reflected in WTP changing between individual and group-based valuation. In the final set of group-deliberated values, there was also a convergence between WTP and the subjective wellbeing indicators, which previously were uncorrelated. Another change was that in the workshops participants formed values for many types of habitats that they didn’t have in the online survey.

Storytelling during the DMV workshops brought up a range of themes that expressed communal values and shared experiences and identity, including connectedness, magical and

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spiritual experiences, adventure and both social connections and solitary reflection and escape, with some difference of emphasis between divers and anglers.

In the MCA workshops, focusing the deliberation and scoring on site-based values helped tie values to specific landscapes. As in the DMV workshops, deliberated individual values fell between non-deliberated individual values and deliberated group values. Ranking results reflected trade-offs between other-regarding, transcendental values particularly environmental protection, and self-regarding, utilitarian values (focused on recreational opportunities). Fairness and proportionality around measures and between different sea users was again an important theme.

Asking participants for how they thought their values around marine sites should be assessed, the majority indicated they preferred the workshop format and most of those preferred group to individual choices. Participants also felt more confident about their answers in workshops than in the online survey.

The mixed method approach used in this case study provided a richer picture of values than any single method approach could have. The monetary and analytical elements of the methodology helped to inform decision-makers about the relative priorities of key user groups, while interpretive techniques conveyed their deeper meaning. Deliberation impacted on values by making them more considered but also made contextual values for marine sites a better reflection of underlying transcendental values and the subjective well-being gained from the places visited.

Box 2. Valuing old-growth forests in Nova Scotia, Canada

Across, the world, old-growth forests have substantially declined. Management of the remainder is often mired in conflict, with different stakeholders presenting conflicting values

around a range of ecosystem services, including food, shelter, fuel, timber, biodiversity and cultural heritage. This case study from, Nova Scotia, Canada, based on research by Owen et al. (2009), provides an example of combining interpretive and deliberative methods to assess stakeholder values, aiding sustainable forest management.

Methods

Nine field trips involved 76 participants from indigenous groups, forestry professionals, environmental organizations and the public. In the morning participants were introduced to forest stands that differed in maturity and degree of harvesting and asked to reflect on their feelings in a personal diary. In the afternoon a focus group or talking circle was held and participants completed a rating sheet. The journals and focus group discussion were analyzed through thematic coding based on a combination of a pre-defined coding structure (a set of transcendental values) and grounded theory (a way of coding where a coding structure is not pre-defined but developed from the data). The rating sheet asked participants to select which transcendental values (e.g. beauty, naturalness, intrinsic values) and ecosystem services (e.g. life support, aesthetics, education) were most highlighted by the old-growth forests, and how these were affected by different silvicultural treatments.

Results

Participants highlighted a diverse range of services, benefits and values, including habitat, peace, sacredness, beauty, water quality/quantity, education, wildlife appreciation, recreation. Old-growth forests were also important for identity and culture. One indigenous participant noted: ‘Something more powerful in old growth, the larger trees. What was life like when these large trees were saplings? It gives people a sense of history. What were our ancestors doing at this point in time?’ (Owen et al., 2009, p. 244).

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Participants put forward over 20 suggestions for improving old-growth management including more collaborative processes, stronger government policy, incentives, more public access and education, changes in management by industry such as set-asides and employing more selective treatments.

The integrated use of deliberation, rating sheets and interpretive analysis combined the advantages of different approaches. Rating sheets provided specific results on individual and overall group preference. Focus groups provided more in-depth information on why particular ecosystem services were important and a forum for bringing different points of view together. The qualitative diary data yielded an in-depth understanding of values, particularly around non-material values associated with old growth such as spirituality, beauty, heritage, and equity. The different threads of data delivered forest managers a rich picture of the value of forest ecosystem services to help inform management decisions.

Table 1. Selection of key deliberative and non-monetary methods that can be used to assess different types of values of ecosystem services

<i>Technique</i>		<i>Description</i>	<i>Types of values that may be elicited</i>
Deliberative	In-depth discussion groups	Group (usually 4 – 8 people) discussions (often repeated), during which participants shape the terms of discussion, develop themes in ways relevant to their own needs and priorities.	<p><i>Process:</i> Cultural/societal, communal, transcendental, group, deliberated, other-regarding, values in relation to society.</p> <p><i>Outcome:</i> Deliberated group or individual, transcendental and/or contextual values.</p>
	Citizen's juries	A small cross section of the general public who come to a considered judgement about a stated policy issue/problem through detailed exposure to and scrutiny of, the relevant evidence base. Group responds by providing a recommendation or 'verdict'.	<p><i>Process:</i> Cultural/societal, communal, transcendental, other-regarding, values in relation to society.</p> <p><i>Outcome:</i> Deliberated group contextual values (verdict).</p>
	Deliberative opinion polls	Technique designed to observe the evolution of the views of a large citizen test group as they learn about a topic. Typically the group votes on the issues before and after an extended debate.	<p><i>Process:</i> Cultural/societal, communal, transcendental, group, deliberated, other-regarding, values in relation to society.</p> <p><i>Outcome:</i> Deliberated individual indicators (vote counts).</p>
Analytical-deliberative	Participatory modelling	The involvement of stakeholders in the design and content of analytical models that represent ES and their benefits under different spatial and temporal conditions.	<p><i>Process:</i> Cultural/societal and communal contextual values. Other-regarding and transcendental values only likely to be made explicit if prompted through reflection/deliberation process.</p> <p><i>Outcome:</i> Deliberated group contextual values and indicators (relative importance of different parameters and their relationships).</p>
	Deliberative monetary valuation	<p>Techniques that use formal methods of group deliberation to come to a decision on monetary values for environmental change.</p> <p>May be allied to survey-based techniques (CV or CEs) or use a non-econometric approach to establish values (e.g. incorporating citizen's juries).</p>	<p><i>Process:</i> Cultural/societal and communal contextual values. Other-regarding and transcendental values only likely to be made explicit if prompted through reflection/deliberation process.</p> <p><i>Outcome:</i> Deliberated and/or group indicators (Deliberated individual or group WTP, deliberated individual or group fair price, Deliberated individual or group social WTP).</p>
	Deliberative multi-criteria analysis	Techniques that involve groups of stakeholders designing formal criteria against which to judge the non-monetary and (sometimes) monetary costs and benefits of different management options as the basis for making a decision.	<p><i>Process:</i> Cultural/societal and communal contextual values. Other-regarding and transcendental values only likely to be made explicit if prompted through reflection/deliberation process.</p> <p><i>Outcome:</i> Deliberated contextual individual or group values and indicators (ratings/rankings/scores).</p>

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<i>Technique</i>		<i>Description</i>	<i>Types of values that may be elicited</i>
Interpretive, potentially deliberative	Participatory mapping/GIS	A group of stakeholders consider or create a physical or digital map to indicate landscape features that are valuable (and/or problematic). Participants may also rate or rank these features for importance. Map layers can also incorporate photo, video, artwork, poetry, etc.	<p><i>Process:</i> Communal contextual values, if features are important/assessed on a larger scale: contextual cultural/societal values.</p> <p><i>Outcome:</i> As above. If features are deliberated and decided upon or rated/ranked by groups, these take the form of deliberated group contextual values and indicators.</p>
	Storytelling	Participants are asked to tell stories about their experiences of or in relation to places. These may be reflected upon in a group setting to discuss values related to these experiences.	<p><i>Process:</i> Communal contextual values, if features are important/assessed on a larger scale: contextual cultural/societal values. Other-regarding and transcendental values only likely to be made explicit if prompted through reflection/deliberation process.</p> <p><i>Outcome:</i> As process. If stories are deliberated in a group setting, these may take the form of deliberated group values. Number of times particular themes or values are expressed can provide indicators.</p>
	Interviews	Participants are interviewed about their values, beliefs and preferences. Group interviews allow for deliberation and are similar to in-depth discussion groups. However, in group interviews, terms are set by the interviewer rather than the group.	<i>Process and outcome:</i> as storytelling.
Interpretive	Media analysis	Use of a range of textual analysis tools (particularly content, frame and discourse analysis) on (mass) media outputs and social media content over a selected period of time.	<p><i>Process:</i> n/a.</p> <p><i>Outcome:</i> transcendental, communal, societal and cultural values, other-regarding-values.</p>
	Desk-based cultural history study	This approach can be used effectively as a first option to quickly scan existing literature over a specified period of time to identify values connected with the decision being considered. The study can cover academic and grey literature, as well as creative writing (prose and poetry). Historical analysis can deliver understanding of past value and belief conflicts that can help to better manage present issues and mitigate risks.	<p><i>Process:</i> n/a</p> <p><i>Outcome:</i> transcendental, communal, societal and cultural values, other-regarding-values.</p>
	Other interpretive methods	A wide range of qualitative techniques including ethnography and participant observation, genealogy, life history methods, dramaturgical analysis, reviewing landscape character descriptions, other textual analysis of various sorts including discourse, content and frame analysis.	<p><i>Process:</i> n/a.</p> <p><i>Outcome:</i> Variable, can be particularly suited to transcendental, communal, societal and cultural values.</p>

<i>Technique</i>		<i>Description</i>	<i>Types of values that may be elicited</i>
Psychometric deliberative	Values compass	This method asks participants to consider which of their individual transcendental values are most important by ranking or rating them, and then asks to discuss the degree to which these values are important for one's community, culture or society. Values can also be ranked or rated on a group basis. It is based on the values typology developed by Schwartz (1990).	<i>Process:</i> transcendental individual, communal, cultural and/or societal values. <i>Outcome:</i> As process, plus group and deliberated values.
Psychometric	Subjective well-being indicators	These can be used to assess how and the degree to which places contribute to one's well-being, and are thus highly suitable for assessing the value of cultural ecosystem services using a quantitative non-monetary metric.	<i>Process:</i> n/a <i>Outcome:</i> communal, societal and cultural contextual values.
	Other psychometric	Psychometric testing refers to the measurement of psychological phenomena and processes, e.g. knowledge, experience, attitudes, values, worldviews. Psychometric models (e.g. Values-Beliefs-Norms, Theory of Planned Behaviour) can be used to better understand the impact of deliberative processes on values.	<i>Process:</i> n/a <i>Outcome:</i> standard scales exist for transcendental values, and can be developed on a case-by-case basis for contextual communal, cultural and social values. Statistical models can be used to relate psychometric variables (e.g. transcendental values) to contextual values and indicators such as WTP.

The content of this table was derived from Kenter et al. (2014; 2015).

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Table 2. Methods and stages of the policy cycle.

<i>Stage of policy cycle</i>	<i>Potential tools/methods</i>
Ideas	Visioning Storytelling
Survey	Deliberative monetary valuation Participatory mapping/GIS Psychometric subjective wellbeing indicators Psychological values and beliefs surveys Values compass (Social) media analysis Desk-based cultural history study Storytelling Interviews In-depth discussion groups Deliberative opinion polls Review landscape character descriptions Existing datasets
Assess	Deliberative monetary valuation Deliberative multi-criteria analysis Citizens' juries Participatory (systems) modelling
Plan	Participatory budgeting Scenarios Visioning Visualisations
Deliver / manage	In-depth discussion groups Participatory mapping/GIS Participatory budgeting Review landscape character descriptions
Evaluate	As under 'Assess'

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